

At 22
cont. 24. A method in accordance with claim 23 in which the electrical forces are applied
by an electric motor turning a screw means to pull the frictional surfaces together.

REMARKS

By this amendment: (1) claims 3 and 4 are amended to cure minor errors; (2) claim 2 is rewritten to cure an antecedent fault; and (3) new claims 8 – 24 are added to better define the invention.

This application now includes claims 1 – 24. In view of the above amendments and the remarks hereinafter it is respectfully requested that this application be reconsidered.

The applicant provisionally elects with traverse the invention of claims 1-8 and the claims directed to species D, claims 1-4, as defined hereinafter. The elected species is the species of FIG. 42. If claim 1 is generic, then claim 2 is generic for the same reasons. New claims 8 – 12 depend from claim 3 or claim 4 and claims 13 – 24 are method claims. Claim 2, like claim 1, is within the species of and readable on FIGS. 60-65 and 74 (species E and F). Claim 7 readable on species E and F since it is directed to a component usable with any system. Claims 3 and 4 are readable on species D. Claim 6 is within species E. Claim 5 is not within any of the species defined by the Examiner but is readable on FIG. 1. The new method claims are not readable on any of the listed FIGS. because they are method claims. New apparatus claims 8, 10 and 12 are readable on species D and the apparatus claims 9, 11, and 12 are readable on species E and F.

While the Examiner has required an election of the invention the Examiner has not defined the groups of independent and distinct inventions. Since there is only one group to consider under the Rules, all of the claims must be in that group.

The election of species is respectfully traversed. Firstly, the species defined by the Examiner mix systems and components of systems and the systems and components are not species with respect to each other because they are not alternative embodiments of each other. Moreover, the claims do not recite the distinguishing parts of most of the defined species.

The species of FIG. 3 (species A) is actually a plan view of another embodiment of control module that does not differ from the species of FIGS. 5-6 (species B), in any manner recognized by the claims. FIG. 19 (species C) is another embodiment of control unit but the claims that cover it also cover the embodiments of FIGS. 3-6 (species A and B). The species of FIG. 42, (species D) is another embodiment of control unit. FIGS. 60-65 (species E) is another system that includes a control module as well as braces and is not an alternative to the control modules of FIGS. 3, 5-6, 19 or 42 (species A-D). There are no claims directed to FIG. 74 (species F) which is a component part of the system of claims 60-65 (species E). The species of FIG. 78 (species G) is another system but it is covered by the same generic claims. The species of FIG. 97 is another control module and the species of FIG. 99 is another control module. The claims are broad enough so they do not distinguish between the different control modules except for the modules shown in FIG. 42, the elected species. The claims are directed to features that are in common with more than one species defined by the Examiner and all are dependent except for claim 1 and new claims 13 and 20.

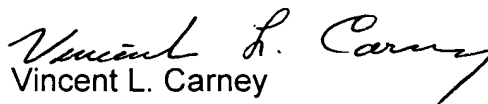
The requirement for restriction of invention of the Examiner is respectfully traversed on the ground the Examiner, while requiring an election of invention on page two, item number two, has not complied with MPEP 814 and defined groups. Perhaps the Office action contains a typographical error and item number two was intended to refer to species or perhaps the Examiner intended to name a group of claims for the applicant to elect an invention. Nonetheless, any intended election of inventions is respectfully traversed on the ground that the claims are so closely related as not to be independent and distinct.

Because the claims are closely related, the searches are interwoven. The same patents that claim one application of the particles could very well disclose the other applications for the products. Because the searches are interwoven, it is respectfully submitted that the inventions have not acquired a separate status in the art.

It is respectfully requested, in view of the above comments, that both the election of invention and the election of species be withdrawn.

For the convenience of the Examiner and the applicant, appendix A is attached hereto containing the claims as they will be after entering this amendment.

Respectfully submitted,


Vincent L. Carney
Attorney for the Applicant
Reg. No. 20,688
P.O. Box 80836
Lincoln, NE 68501-0836
(402) 465-8808

APPENDIX A

Claims as of January 3, 2001:

Claims 1-24.

1. An orthotic apparatus for reducing arthrokinetic dysfunction after determining tracking problems after examining the patient comprising:

a jointed limb brace having a first section, a second section, and a brace joint means;

means for connecting said first section and second section to the patient whereby the first section may be connected to a portion of a limb of a person on one side of a joint of the limb and the second section to a portion of a limb of a person on the opposite side of the joint of the limb;

friction means for varying the resistance to movement of the first and second sections with respect to each other;

said friction means being connected to said first and second sections adjacent to said brace joint means; and

means for adjusting the resistance in the friction means wherein the friction means provides a preadjusted resistance to motion independent of the velocity of the motion in a pattern to provide proper tracking.

2. Orthotic apparatus according to claim 1 in which said friction means includes first and second friction members and the means for adjusting includes control means having

a program; said program controlling pressure between said first and second friction members.

3. Orthotic apparatus according to claim 2 in which the pressure between said first and second friction members is controlled magnetically.

4. Orthotic apparatus according to claim 2 in which the pressure between said first and second friction members is controlled by a motor-driven screw drive means.

5. Orthotic apparatus according to claim 3 wherein the first section is connected to one of a leg and thigh and the second section is connected to the other of a leg and thigh.

6. Orthotic apparatus according to claim 3 wherein the first section is connected to one of a forearm and arm and the second section is connected to the other of a forearm and arm.

7. Orthotic apparatus according to claim 3 in which said friction means is removeably attached to said first and second sections over said brace joint means.

8. Orthotic apparatus in accordance with claim 3 in which the first and second friction members are flat surfaces.

9. Orthotic apparatus in accordance with claim 3 in which the first and second friction members are curved surfaces.

10. Orthotic apparatus in accordance with claim 4 in which the first and second friction members are flat surfaces.

11. Orthotic apparatus in accordance with claim 4 in which the first and second friction members are curved members.

12. Orthotic apparatus in accordance with claim 2 in which said program creates greater friction by pressing the friction members together more tightly when the limbs are being moved in a direction aided by weakened muscles, whereby weakened muscles are given greater support than stronger muscles.

13. A method of reducing arthrokinetic dysfunction after determining tracking problems by examining the patient comprising the steps of:

measuring the tracking of a limb while it is moved about a joint;

creating resistance to movement of the limb about the joint using an external resistance that is independent in resisting force of the velocity of movement of the limb;

controlling the resistance so as to cause proper tracking.

14. A method in accordance with claim 13 in which the step of controlling the resistance includes the step of adjusting the resistance until tracking is proper.

15. A method in accordance with claim 14 in which the resistance is adjusted until a patient with arthrokinetic dysfunction can move the limb without pain.

16. A method in accordance with claim 15 in which the resistance is adjusted under the control of a microprocessor.

17. A method in accordance with claim 16 in which the microprocessor controls the pressure between frictional surfaces that move with the limb about the joint by controlling magnetic attraction forcing the surfaces together.

18. A method in accordance with claim 16 in which the microprocessor controls the pressure between frictional surfaces that move with respect to each other in accordance with the motion of the limbs about the joint by controlling a motor driven screw that tightens and loosens the surfaces under the control of the microprocessor.

19. A method in accordance with claim 18 in which the step of creating resistance comprises the steps of creating resistance that resists motion by a weakened muscle to a greater extent than to a normal muscle, whereby support is provided to the weakened muscle.

20. A method of aiding a person in physical activity, wherein the person has weakened or damaged muscle, comprising the steps of:

providing resistance to movement in the direction of natural forces, wherein the natural forces are offset;

the step of applying resistance comprising the step of applying a resistance which varies in magnitude in accordance with a program, in which said resistance is independent of velocity of movement.

21. A method in accordance with claim 21 in which the program is within a microprocessor.

22. A method in accordance with claim 20 in which the resistance is controlled by electrical forces.

23. A method in accordance with claim 22 in which the electrical forces are applied by electromagnets forcing frictional surfaces together.

24. A method in accordance with claim 23 in which the electrical forces are applied by an electric motor turning a screw means to pull the frictional surfaces together.